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This is a preliminary study on the benefits of pre-operative and post-operative pain control tapes on eighty patients in the Oak Ridge Hospital during 1981. Forty patients were in the control group and forty patients in the tape group. This is a retrospective study with patients having similar operations being matched with patients who were in the tape study.

Patients in this study were instructed on use of pain control tapes which were used primarily in the following manner. The patient was given sleeping medication approximately 10:00 p.m. and at that time a forty-five minute stereo tape using the Monroe Institute of Applied Science hemisynchronization technique was played. These tapes were from a series including a pre-operative tape, intra-operative tape and post-operative pain control tape. The patient listened to the pre-operative tape at the time of his sleeping medication. The following day, the patient was given a pre-operative injection consisting usually of a narcotic and a sedative. At that time the pre-operative tape was again played. Small head phones and a small tape player were used. The patient was not to be disturbed while listening to the tape. However, there were many exceptions to the rule. It should also be noted that although an effort was made to educate the nursing staff and technicians frequently the tapes were inadvertly stopped while the patient was taken to the operating room and occasionally the tape was completed in the pre-operative room while the patient was awaiting transportation to the operating room. An intra-operative tape was played during the operation. A post-operative recovery tape was played in the recovery room.

The nursing staff was again instructed to use the pain control tape in the first one to three days post-operative whenever the patient received an injection. Again, it should be noted that these orders were not always followed. After forty patients had used the tapes a control series was obtained by selecting charts of patients with similar operations. The charts were examined for average days in the hospital, an average number of pain shots in the first three post-op and an average number of pain medication by mouth in the first three days post-operatively.

Below you see a summary of this data:

	Control	Tapes
Total days in hospital	235	237
Average days in hospital	5.87	5.93
Total number of pain injections	191	191
Average number of pain injections	4.78	4.78
Total number of pain pills	22	32
Average number of pain pills	0.5	0.8

As can be seen from the above data, there was essentially no difference in the patients using the pain control tapes and in the control series in the areas examined. However, as noted the tapes were not always used as we had hoped for optimal benefits as the nursing staff and orderly staff were in a period of education about the tapes during this series.

Several impressions were obvious while using the pain control tapes. The beneficial results seem to be: 1. Patients with tapes playing appear to be much more relaxed during the night prior to surgery and in the holding room prior to surgery. 2. Several very anxious patients slept the entire night and were very pleased with the benefits of the tapes allowing them to relax and become less fearful of surgery. 3. During the post-operative period, it was noted that occasionally patients would listen to the tapes rather than take pain medication. 4. Intensive Care nurses reported that the patients who were using the tapes were much more calm and relaxed and easy to manage in the Intensive Care Unit. 5. Two or three hypertensive patients were noted to be come normo-tensive when using the pre-operative tapes the night prior to surgery and continued to be normo-tensive throughout their stay in the hospital.

6. Patient acceptance was good to excellent in approximately 80% of patients. 7. Patients in the recovery room needed less pain medication when the tapes were playing. It has become obvious that when the tape would stop the patient became more restless and asked for pain medication. 8. The hospital staff acceptance was good. 9. The anesthesia staff acceptance was good.

Some difficulties with the tapes included the fact that a few patient refused to listen to the tapes as they were concerned about being "hypnotized" or other adverse effects. 2. One or two patients stated that the tapes made them more anxious rather than less anxious prior to surgery and after surgery. 3. One patient who had a post-operative psychosis stated that the tape made him more confused. 4. It took a lot of time from hospital personnel to instruct the patients on use of the tapes and to see that they were used correctly. 5. It was difficult to teach this technique to all of the nursing staff and technicians involved. I feel that it would be best to have one or two people in charge of seeing that the tapes were done correctly rather than relying on the hospital staff. 6. It is expensive to buy equipment and maintain it and there was some loss of tape players during the time of the study. The earphones were sometimes annoying to the patients and a smaller type of headphone would be much more advantaeous. (the smallest currently commercially available headphones were used.)

I feel that continued cooperation between practicing physicians and the Monroe Institute of Applied Science can lead to more effective tapes and that a more detailed, controlled prospective study will be helpful to finding the appropriate use of hemisyc tapes in surgical and emergency practice.

A study of the use of the tapes in treatment of hypertension would also be very interesting.